

**OPINION 2345 (Case 3579)*****Scarabaeus fimetarius* Linnaeus, 1758 (currently *Aphodius fimetarius*; Insecta, Coleoptera, SCARABAEIDAE): neotype designated**

**Abstract.** The Commission has conserved under the plenary power the current usage of the name *Aphodius fimetarius* (Linnaeus, 1758) for a Holarctic species of aphodiine dung beetle by setting aside all previous type fixations and designating a neotype.

**Keywords.** Nomenclature; taxonomy; SCARABAEIDAE; APHODIINAE; *Aphodius*; *Aphodius fimetarius*; *Aphodius pedellus*; *Aphodius foetens*; dung beetle; Recent; Holarctic.

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**Ruling**

- (1) Under the plenary power it is hereby ruled that all previous type fixations for the nominal species *fimetarius* Linnaeus, 1758, as published in the binomen *Scarabaeus fimetarius*, are set aside and the specimen with the unique identification label BMNH{E}UIN990028 at the Natural History Museum, London is designated as the neotype;
- (2) The name *fimetarius* Linnaeus, 1758, as published in the binomen *Scarabaeus fimetarius*, and as defined by the neotype designated in (1), is hereby placed on the Official List of Specific Names in Zoology.

**History of Case 3579**

An application to conserve the current usage of the name *Aphodius fimetarius* (Linnaeus, 1758) by setting aside all previous type fixations and designating a neotype was received from Robert B. Angus (*School of Biological Sciences, Royal Holloway, University of London, Egham & Natural History Museum, London, U.K.*), Christine J. Wilson (*School of Biological Sciences, Royal Holloway, University of London, Egham, U.K.* & Frank-Thorsten Krell (*Department of Zoology, Denver Museum of Nature & Science, Denver, CO, U.S.A.*) on 3 November 2011. After correspondence the Case was published in BZN 69: 29–36 (March 2012). The title, abstract and keywords of the Case were published on the Commission's website. Supportive and adverse comments were published in BZN 69: 128–140; 221–229; 284–293 and 70: 48–51. The Case was sent for vote on 5 June 2014 and included two sets of proposals (original proposals (Set A), and alternative proposals (Set B) published in one of the adverse comments).

**Set A (original) (BZN 69: 34)**

The International Commission on Zoological Nomenclature was accordingly asked:

- (1) to use its plenary power to set aside all previous type fixations for the nominal species *fimetarius* Linnaeus, 1758, as published in the binomen *Scarabaeus fimetarius*, and to designate the specimen with the unique identification label BMNH{E}UIN990028 at the Natural History Museum, London, as the neotype;

- (2) to place on the Official List of Specific Names in Zoology the name *fimetarius* Linnaeus, 1758, as published in the binomen *Scarabaeus fimetarius*, and as defined by the neotype designated in (1) above.

**Set B (alternative) (BZN 69: 134)**

The International Commission on Zoological Nomenclature was accordingly asked:

- (1) to use its plenary power to set aside all previous type fixations for the nominal species *fimetarius* Linnaeus, 1758, as published in the binomen *Scarabaeus fimetarius*, and to designate as neotype the specimen LIN 3386 in the Linnean Collection at Burlington House, London; the specimen is labelled ‘*Aphodius pedellus* (DeGeer), C.J. Wilson det. 2001’;
- (2) to use its plenary power to suppress the following names for the purposes of the Principle of Priority, but not for those of the Principle of Homonymy:
- (a) *subluteus* Mulsant, 1842, as published as *Aphodius fimetarius* var. *subluteus*;
- (b) *nodifrons* Randall, 1838, as published in the binomen *Aphodius nodifrons*;
- (3) to place on the Official List of Specific Names in Zoology the names:
- (a) *fimetarius* Linnaeus, 1758, as published in the binomen *Scarabaeus fimetarius*, and as defined by the neotype designated in (1) above;
- (b) *cardinalis* Reitter, 1892, as published in the binomen *Aphodius cardinalis*, and as defined by the neotype designated herein [BZN 69: 132];
- (4) to place on the Official Index of Rejected and Invalid Specific Names in Zoology the following names:
- (a) *subluteus* Mulsant, 1842, as published as *Aphodius fimetarius* var. *subluteus* and as suppressed in (2)(a) above;
- (b) *nodifrons* Randall, 1838, as published in the binomen *Aphodius nodifrons* and as suppressed in (2)(b) above.

**Decision of the Commission**

At the close of the voting period on 5 September 2014 the votes were as follows:

**Set A:**

Affirmative votes – 16: Ballerio, Bouchet, Fautin, Grygier, Halliday, Harvey, Kottelat, Krell, Lamas, Ng, Pape, Patterson, Rosenberg, van Tol, Yanega and Zhou.

Negative votes – 7: Alonso-Zarazaga, Bogutskaya, Brothers, Kojima, Kullander, Winston and Zhang.

Pyle and Štys were on leave of absence.

**Set B:**

Affirmative votes – 5: Alonso-Zarazaga, Bogutskaya, Brothers, Kullander and Zhang.

Negative votes – 17: Ballerio, Bouchet, Fautin, Grygier, Halliday, Harvey, Kojima, Kottelat, Krell, Lamas, Ng, Pape, Patterson, Rosenberg, van Tol, Winston and Yanega.

Abstained – 1: Zhou

Pyle and Štys were on leave of absence.

Voting FOR Set A, Grygier said that Miraldo et al.'s (2014) deposition in GenBank of a COI 'barcode' for Angus et al.'s proposed neotype of *Scarabaeus fimetarius* had been the deciding factor for him, as to which nominated specimen would better serve the purpose of name-bearing type. He also commented that such barcodes should be based on name-bearing types, not possibly misidentified vouchers, for absolute assurance of their permanent validity. He also pointed out that Branco had also nominated one of the Linnaeus's syntypes as name-bearing type in his Comment (BZN 69(3): 228–229), but not by reference to any specimen number: 'male on the same type of pin as the females'. Since the metadata for the photos on the Linnean Society's website do not include the sex of the specimens, it was not clear whether or not he was referring to specimen LIN 3386, nominated as neotype by Fery (BZN 69(2): 128–136). The sex of this latter specimen is also not stated on the website, nor in Fery's Comment, while the specimen nominated by Angus et al. was clearly stated to be a male, another point in their favour, he added. Also voting FOR, Bouchet said that he was impressed by the depth and breadth of the application and comments from both sides on this Case. The strength of the proposals set A is that the neotype is a specimen with a known karyotype, and thus more likely to carry its function of name-bearing type, he added. Voting AGAINST both sets, Kojima said that this application could be solved in accordance with the Code, without involvement of the Commission. The critical point would be whether Wilson's (2001) lectotype designation was valid or not according to the Code. Also voting AGAINST both sets, Winston said that new research results as well some of the arguments in the comments indicated that the cryptic species situation for this group in North America and Europe might be different. Making the changes suggested at this point would probably not hold for the future.

### Original references

The following is the original reference to the name placed on the Official List by the ruling given in the present Opinion:

*fimetarius*, *Scarabaeus*, Linnaeus, 1758, *Systema Naturae*, Ed. 10, vol. 1. Salvii, Holmiae, p. 348.

The following is the reference to the deposition in GenBank of a COI 'barcode' for Angus et al.'s proposed neotype of *Scarabaeus fimetarius*:

Miraldo, A., Krell, F.-T., Smalén, M., Angus, R.B. & Roslin, T. 2014. Making the cryptic visible – resolving the species complex of *Aphodius fimetarius* (Linnaeus, 1758) and *Aphodius pedellus* (de Geer, 1774) (Coleoptera: Aphodiidae) by three complementary methods. *Systematic Entomology*, 39: 531–547.